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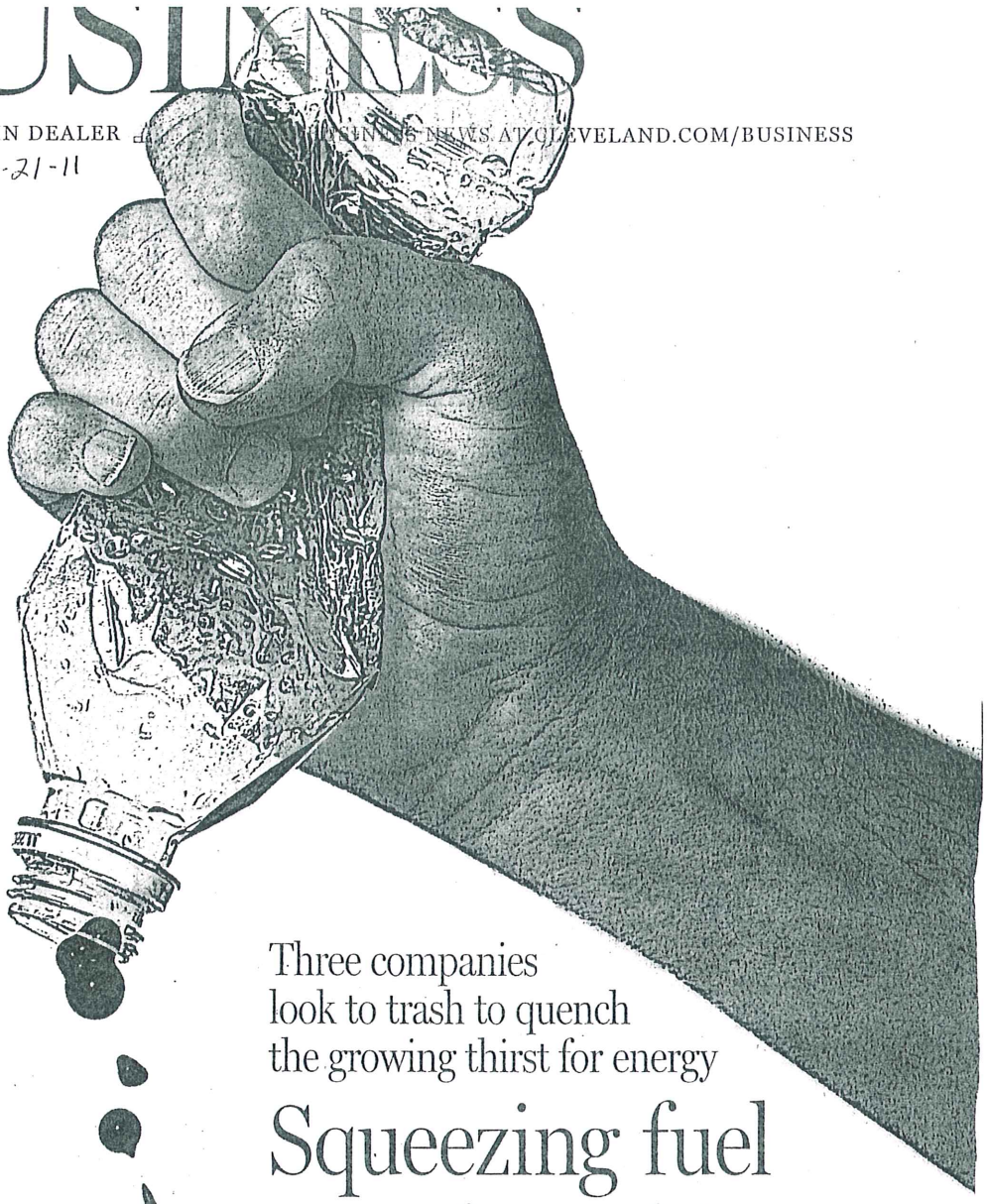

PLAIN DEALER PHOTOILLUSTRATION BY REID BROWN AND ALLISON CAREY

Three companies look to trash to quench the growing thirst for energy

Squeezing fuel out of anything

JOHN FUNK | *Plain Dealer Reporter*

Imagine a future in which cars are powered by old plastic bottles or tires. And trucks are fueled by food scraps and manure. ¶ That future is struggling to become a reality right here in Northeast Ohio. Right now. ¶ Two small Northeast Ohio companies are racing to make oil and motor fuel from the endless stream of polymer-based consumer products that is clogging landfills despite recycling programs. ¶ A third company with deep roots in composting is significantly involved in a technology that "digests" garbage, producing fertilizer and a methane mixture that is already a fuel for power generators.

"We employ about 60 people and we are looking to hire 10 more, including electricians, engineers and analysts. Five years ago, we employed two people."

Mel Kurtz, CEO of Quasar Energy Group

All three of them are active members of a "cluster" of companies put together by NorTech, a Cleveland nonprofit focused on developing the region's high-tech economy.

NorTech has for more than a year brought together both startup and established companies from throughout the region, organizing them into working groups that meet regularly.

The result has been a kind of synergy, a recognition on the grass-roots level of the manufacturing and engineering might of the region.

David Karpinski of NorTech describes it as "a road map" to building concentrations or "clusters" of companies.

"These three companies connected with NorTech early on. We recognized the opportunity they represent. Waste-to-energy is clearly on the radar screen," he said.

Quasar Energy Group

Quasar Energy Group of Cleveland has built anaerobic digesters in Akron, Columbus, Wooster, Zanesville and Rutland, Mass. It plans projects in Barberton, Uniontown, Wooster (a second one), North Ridgeville, Grand Lake St. Marys and Toledo.

The company has two projects under construction in Cleveland and Haviland, as well as expansion plans for the existing digesters in Columbus and Zanesville.

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"We have $100 million in back orders," Quasar Chief Executive Mel Kurtz said in an interview last week.

"We employ about 60 people and we are looking to hire 10 more, including electricians, engineers and analysts," he said. "Five years ago, we employed two people."

Quasar's first project was to build a digester for the city of Akron's sewage treatment plant in 2007, using German technology. Today, Quasar has engineered its own system. And its equipment is assembled from components manufactured in Ohio, or in a few cases another state.

The digesters really do digest the materials, using the same bacteria that live in the bowels of cows. Anaerobic (which means the absence of oxygen) digesters are not new, but building one that is efficient and productive enough to be a commercial success would be new.

One reason Quasar may succeed is that once the company proved its technology, it received millions of dollars in state and federal grants.

That aid includes research the company's engineers are doing on the Wooster campus of Ohio State University's Ohio Agricultural Research and Development Center, where they are working side-by-side with OSU professors.

Kurtz expresses certainty that Quasar will succeed without subsidies. One reason is that he intends eventually to begin selling liquefied natural gas as a truck fuel rather than using the digester gas only to generate electricity.

Another reason he can be confident that Quasar's digesters have a leg up on traditional digester technology is that its high-tech computer control system is made by the Northeast Ohio division of Rockwell Automation.

Rockwell, based in Milwaukee, is a global company with the kind of expertise that a startup like Quasar does not typically employ, not without the kind of networking provided by NorTech.

Quasar's programmable logic control system was designed in Mayfield Heights, and most of it was manufactured in Twinsburg, said David Mayewski, Rockwell's business development leader here.

Vadxx Energy, Polyflow

Akron is the starting point for the two plastics-to-fuel companies as well.

Vadxx Energy LLC, with offices in Cleveland, has been testing a small reactor vessel in Akron that company Chief Executive James Garrett says is ready to ramp up immediately.

The process — "thermal depolymerization" — can break down any plastic using a proprietary technology that heats the shredded material in an airtight crucible.

The system turns out an oil that Garrett says is similar to the very best U.S. oil. He is already talking with refineries to take the oil to blend with lesser grades of crude.

The company has partnered with Greenstar Recycling of Houston for its first big project — handling the city of Akron's curbside recyclable materials. Garrett said he expects to be able to produce 80,000 barrels of light crude annually.

In addition to using the plastics, Garrett plans to build units that produce oil from shredded tires.

Also in Akron is Polyflow, a company that has experimented since 2008 with a technology that can convert any polymer-based plastic or synthetic fiber into oil.

Jay Schabel, chief executive, said the company has run about 70 batches, each turning 350 pounds of scrap plastic into an oil. Polyflow's plans, though, are to further refine the oil into gasoline and diesel.

The company, in conjunction with Youngstown State University, has won a $1.6 million grant to build the testing equipment that will analyze the oils, look for contaminants or help decide what might have to be added, said Michael Hripko, YSU's director of research and technology-based economic development.

Like Quasar, the two companies have benefited from the association with NorTech.

"NorTech is one plus one equals three," Garrett said. "They introduced us to people we would never have been introduced to. NorTech's cluster idea is a good one."

Schabel said he intends to look to Rockwell Automation when Polyflow builds its commercial units.

Both Schabel and Garrett believe they can break even when crude oil is selling at $35 to $40 per barrel, meaning at today's $80- to $100-per-barrel range, they can do very well.

Both men say their machines are manufactured here from components also made here.

Polyflow's first large unit will be built by Niagara Systems of Perry.

Vadxx has partnered with Weingart Manufacturing LLC to create the Akros Equipment Co., which will manufacture the Vadxx processors.

Brooks Weingart said Akros is projecting building 100 processors in five years, creating 105 manufacturing jobs and overall 350 jobs throughout the region.

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Ohio site's recycled metal means cash for counties

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PIKETON — As the U.S. Department of Energy demolishes a former uranium-processing plant in southern Ohio, the metal is being sold to benefit nearby counties.

Demolition of the Portsmouth Gaseous Diffusion Plant has generated more than 8 million pounds of metal for recycling, according to reports.

The energy department offers the metal to the Southern Ohio Diversification Initiative, which sells it to recyclers.

So far, 5.2 million pounds of it has been sold, with half the sales going toward a fund for economic development in the surrounding counties. The fund has gained $2.8 million from the sales.

The money will benefit counties. The energy department is providing the metal, as well as other clean demolition debris and usable equipment from the cleanup effort.

Local jobs are being created with the proceeds of the sales, said Peter Mingus, who works with the recycling and recovery program for the contractor that is dismantling the site.

The energy department plans to demolish 314 buildings at the site, and the energy department will continue to offer the metal for sale to recyclers, site director Vince Adams said.

"We continue to look closely at every building and structure we take down to find ways to recycle the material generated and return it to the community for every possible opportunity to boost the local economy," Adams said.